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SCIENCE NEWS LETTER

THE WEEKLY SUMMARY OF CURRENT SCIENCE



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See Page 230

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GEOPHYSICS

First Artificial Moonlet

Start this fall of test firings for components to be used in launching artificial satellite may result in the first earth-circling object, actually a burned-out rocket.

► THE EARTH could have an artificial satellite in a few weeks. It would be a burned-out test rocket, flung upward with sufficient speed to take up a globe-girdling orbit.

The United States would therefore win the race with Russia to be first to create a man-made "moon" of the earth.

Test firings are starting soon from Cape Canaveral in Florida, a U. S. Air Force Base. Scientists are gathering there. The satellite rockets are about ready.

The first "shoots" will not carry a satellite "vehicle," complete with radio and other equipment. The satellite would merely be a bit of rocket debris.

However, if the rocket goes fast and high enough, it will usher in a new epoch in space travel.

Even though such a flying "tin can" would not carry instruments, scientists still could learn much from its motion and the time it took to spiral in and burn up in the earth's outer atmosphere.

The first big problem would be to locate, or "acquire," the earth-circling vehicle. This will also be the first problem attacked when an instrumented satellite is launched.

To solve it, visual tracking teams are being organized both here and abroad. They are expected to hold a practice drill sometime between now and Christmas.

The practice, however, could turn out to be a real search for a burned-out rocket, which would be even harder to spot than the first instrumented moonlet to be boosted into an orbit around the earth. This basketball-sized globe will not only have a highly polished finish for the best possible light reflection but will carry a tiny radio transmitter.

In either case, the first few hours after launching will be the critical ones. It is then the teams of visual observers, armed with especially designed and wide-eyed instruments, will be depended on to spot any satellite, since the radio transmitter in an instrumented vehicle could fail.

When the satellite's approximate path has been located, precise optical tracking telescopes, strategically located around the world, can take over the job of tracking the rocket shell or the instrumented object.

As it now stands, the satellite launching program calls for using six preliminary rocket systems for test purposes, to be followed by six complete rocket guidance and control systems.

It is thus possible that by the end of 1958, when the International Geophysical Year during which the satellites will be hurled skyward closes, as many as 12 planet-

circling objects may have been launched by the United States.

Details of Russian plans have not been made public. Delegates to a recent international conference in Barcelona report, however, that Russian agreement made unanimous a resolution calling for publication of codes used in telemetering information from satellites.

Science News Letter, October 13, 1956

TECHNOLOGY

Giant Army Telescope Tracks Missiles in Color

► THE ARMY has a giant telescopic tracker that can follow missiles 300 miles away and show them on a screen in natural color. It weighs a ton and one-half.

Designed to operate in conjunction with radar tracking sets, the optical device simultaneously takes color and black and white photographs of rockets, jets and other flying objects automatically.

The Army reports the tracker can be remotely controlled, thus can be placed in danger areas to record the impact of rockets

and other missiles. Differences between two types of objects moving at the same time within its range are clearly shown.

Now undergoing tests at the White Sands Proving Grounds, the instrument will be used to track and photograph high altitude meteorological balloons for their location and altitude, to locate such objects as rockets and artillery shells, and to evaluate radar systems.

The tracker has a 400-pound lens of 160-inch focal length. It was developed at the Army Signal Corps Engineering Laboratories, Fort Monmouth, N. J.

Science News Letter, October 13, 1956

GENERAL SCIENCE

5,000 Employed in Research Laboratories

► COMMERCIAL LABORATORIES and nonprofit research institutes employed 5,000 scientists and engineers and expended \$85,000,000 in 1953, a survey made for the National Science Foundation indicates.

Of the commercial laboratories expenditures, approximately \$35,000,000 was for scientific research, and about \$4,000,000 for basic research, while the equivalent figures for nonprofit research institutes were more than \$50,000,000 and over \$3,000,000.

The Federal Government contracted with the commercial laboratories for about half of their total research expenditures, with industry responsible for about an equal amount. The institutes had twice as much money from the Government as from industry. (See p. 237.)

Science News Letter, October 13, 1956



PIN-POINTING PLANES—This new Army Signal Corps optical tracker, developed at Fort Monmouth, N. J., can trace a moving plane 300 miles away in natural color on its scope through a powerful, 160-inch lens. The steerable instrument, weighing a ton and a half, is designed to operate with radar sets. Pvt. Lee Harshburger, Leipsic, Ohio, is operating the equipment.

PUBLIC HEALTH

Radioactivity Tags Fleas

► TO UNCOVER new facts about fleas that will provide more insight into how the insects spread plague among wild animals and to man, scientists can now use radioactive chemicals.

Success in getting a radioactive "handle" on fleas, apparently for the first time, has been reported by a team of scientists working for the University of California School of Medicine and the U. S. Public Health Service. The scientists are Drs. S. F. Quan, W. V. Hartwell and Kenneth G. Scott.

Fleas have been considered uncommonly difficult to tag with radioactivity because no way could be found to get the radioactivity into the insect's system.

However, the California scientists noted that cerium 144 is very sticky and adheres tenaciously to living things. So they put fleas on water containing a suspension of cerium 144, and the isotope stuck to the insects' horny coating.

Now the scientists can begin field studies, which will include tagging fleas, turning them loose on wild rodents, and tracing them with counters as the insects hop from

rodent to rodent and to other animals and man.

The radioactivity of cerium 144 lasts for a considerable time, and the quantity needed is so minute as to be entirely safe for the host animal, scientific workers and any possible casual human contacts.

The radioactive fleas will not, of course, be infected with plague. The scientists are just interested in the flea's living habits. They want to know how readily the insect migrates from one animal residence to another, from wild to domestic rodents, and then on to man. They also expect to learn how long fleas live in their natural environment.

The radioactivity tagging method may also be useful in similar studies of ticks, lice and other insects whose habits have been difficult to trace.

Plague, the ancient "black Death," is a rare affliction in the United States, although deaths from it occasionally occur. There are permanent reservoirs of the infection in wild rodent populations, however.

Science News Letter, October 13, 1956

come from the venom of these fish.

Although these fish are found over wide areas of the Pacific and Indian oceans, in shallow water, under rocks or partially buried in the bottom where they menace waders, scientists do not know the chemical nature of their poison or the action of it in the body.

These are the things Dr. Saunders hopes to discover about stonefish and sculpin, a scorpionfish, found off the coast from central to lower California. Sculpin venom causes intense pain and swelling but so far no deaths have been reported from it.

Science News Letter, October 13, 1956

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MEDICINE

Ulcers Not So Common

► STOMACH ULCERS were found less often than expected when a group of 500 business executives were examined by the Health Research Center of Chicago, the American Management Association meeting in New York was told.

Only eight percent of the 500, however, were free of disease and these were invariably men under 40. More than half of the 500 had previously undiscovered disease. Included in the undiscovered diseases was heart disease, found in one out of ten.

Cancer was found in two percent of the executives, and one out of nine had underactive thyroid glands with an excess of fatty elements in the blood, thought to be a factor in hardening of the arteries.

Reporting the research study, Dr. Charles E. Thompson of Chicago gave the following pictures of typical executives at various ages:

The young executive under 40 is physically strong, athletic, energetic and ambitious; he enjoys the combat of business and works from 10 to 12 hours a day.

At 40 to 45, the executive becomes more obese, balding, aware "of a thing called fatigue," able to work only about eight hours a day without strain, less active physically. "Diseases are beginning to appear; however, his preoccupation with his work continues—the psychological drive to achieve is the outstanding feature of this man's philosophy. This has a tendency to make him ignore the early warning signs of disease. He is a man of achievement, of tensions, of economic security and fatigue."

The senior executive over 55 falls into two classifications: the top executive and his associates. The man beyond 55 who is the outstanding physical and mental specimen, Dr. Thompson said, is usually the chairman of the board or the president of the company. He is likely to be physically fit as the result of a "rather stern, self-disciplinary mode of living."

The associate, on the other hand, is more likely to be overweight by the time he is 60, may have high blood pressure, one or more heart attacks, frequently some arthritis or gout, an occasional cancer. Psychologically, he is "a successful, plagued man with a moderate amount of disease."

Science News Letter, October 13, 1956

ICHTHYOLOGY

Search on for Poison Of Dangerous Fish

► THE SEARCH is on for the venom of poisonous fish. Starting at the Scripps Institution of Oceanography, La Jolla, Calif., Dr. Paul R. Saunders of the University of Southern California will conduct the poison search that eventually will take him to Singapore.

Stonefish, the most venomous fish known, are among those he will seek. They inflict wounds producing pain and other symptoms comparable to the bite of a rattlesnake. Paralysis, generalized weakness and, in severe cases, convulsions and death may

ANTHROPOLOGY

True Pygmies Found

► A GROUP of tiny people only a few millimeters taller than the smallest people living in the world were described by Rev. Dr. Martin Gusinde, anthropologist of Catholic University of America, who has just returned from an expedition to their home in the Aiom Range of mountains in New Guinea.

These people are genuine racial pygmies, Father Gusinde said. In this they differ from the dwarfed people Father Gusinde studied last year in the mountains of Venezuela. Those Yupa Indians, he found, are not true pygmies but are stunted by miserable living conditions and improper nutrition.

The genuine racial pygmies of New Guinea average only about 57 inches tall. This makes them only four or five millimeters taller than the shortest people in the world, the Bambuti of the eastern Belgian Congo.

Father Gusinde, who is the first scientist ever to visit these people, found them very hostile at first but he won their friendship with gifts. They were especially pleased with gifts of paints for their bodies and with knives, an important tool in that wild environment.

The pygmies never used the knives against him, Father Gusinde reports.

Matches had the highest value for the pygmies. They also were greatly pleased to receive razor blades because they now like to shave themselves.

The pygmies were apparently the first occupants of New Guinea. They are a completely different race from the Kanakas. But when Polynesians and Melanesians arrived they pushed the pygmies back into the mountains. They are now found only in remote, isolated heights.

The pygmies are a people without a name,



NEW GUINEA PYGMY—One of the group of tiny people discovered in New Guinea is shown here with Rev. Dr. Martin Gusinde, Catholic University anthropologist who studied them.

Father Gusinde said. There are among them four different linguistic groups.

Science News Letter, October 13, 1956

DENTISTRY

Hypnotize Dental Patients

► USE OF HYPNOTISM to overcome the nervousness and fear patients have when going to the dentist was advocated at the American Dental Association meeting in Atlantic City.

The case of a 15-year-old boy who turned yellow and vomited the first time he sat in a dental chair, but who was successfully treated with the aid of hypnotism was reported by Dr. Arthur Kuhner of Cleveland. Another dental patient helped by hypnotism was a 50-year-old woman whose many emotional problems made it very difficult to do dental work on her.

The underlying problems and anxieties of the patients should not be handled by the dentist, Dr. Kuhner and others warned.

However, after three or four sessions of hypnosis limited to getting the patient tran-

quilized, showing him that he will not feel pain and educating him to have confidence in the dentist, patients are conditioned so that the dentist can perform the necessary dental work on them.

Because of the time needed in the preliminary hypnotic sessions, the method is limited to dental patients who could not otherwise be treated.

However, "tremendous potentialities" for hypnosis in dentistry are seen by Dr. Harold Rosen, Baltimore psychiatrist, and Dr. Milton V. Kline, New York psychologist.

Dr. Kline foresees hypnosis emerging within the next ten years as not only a respected field of psychology but also as a major area of research and application to treatment of dental and other patients.

Science News Letter, October 13, 1956

BIOPHYSICS

Radioactive Dye Aids In Liver Diagnosis

► A RADIOACTIVE FORM of the dye, rose bengal, is helping diagnose liver disease, Dr. H. L. Friedell of Cleveland reported at the American Roentgen Ray Society meeting in Los Angeles.

Efforts during the past 40 years to see the liver by X-rays have not been successful, he pointed out.

With the new radioactive dye and a scanner similar to a Geiger counter, a series of dots and dashes, called hepatoscans, are giving doctors a chance to detect liver enlargement, displacement, pressure on the liver by a mass outside and conditions such as tumors that take up space inside the liver.

Important to the new technique is a "cut-off" circuit. This allows recording of only a certain level of uptake by the liver. The information actually recorded then gives the physician conducting the examination somewhat more well-defined diagnostic clues.

In general, with the cut-off technique, it is somewhat easier to delineate defects by the absence of radioactivity rather than by observing areas of increased activity.

These techniques have been extended to problems of delineating other organs and some progress has already been made along these lines.

Science News Letter, October 13, 1956

VIROLOGY

Grow Polio Virus in Cold to Test Virulence

► USE of cold temperature for a test of polio virus virulence is suggested in studies by Drs. George R. Dubes and Margaret Chapin of the University of Kansas School of Medicine in Kansas City, Kans.

Such a test might be useful in picking a virus for vaccine production.

A polio virus that has been adapted to life at 86 degrees Fahrenheit by growth of successive generations at this temperature may be deadapted, or unable to grow, at 96.8 degrees Fahrenheit, the scientists find. The 96.8 temperature is not much below normal body temperature of 98.6 degrees Fahrenheit.

One strain of Type III polio virus that could not grow at this temperature had also become less virulent for monkeys.

Two other polio virus strains, belonging to Type I and Type II respectively, although partly deadapted to growth at 96.8 after adaptation to the lower temperature, were, however, just as virulent as their ancestors that had not had the cold treatment.

The results with the Type III virus suggest, the scientists report in *Science* (Sept. 28), that the degree to which cold-adapted viruses have lost ability to grow at the higher temperature may "serve as an indicator of their loss of virulence for a warm-blooded animal."

Science News Letter, October 13, 1956

MEDICINE

Saliva's Cancer Protection

Report evidence that saliva protects mouths of smokers from cancer. Tobacco, however, also found the most common irritant associated with a condition sometimes pre-cancerous.

► THE POSSIBILITY that saliva may protect smokers' mouths from cancer was suggested in a report to the American Dental Association meeting in Atlantic City.

The report came from Dr. Seymour J. Kreshover of the National Institute for Dental Health, Bethesda, Md. It was based on studies made while he was at the Medical College of Virginia School of Dentistry, Richmond.

Tobacco, however, is the most common irritant associated with white patches in the mouth that sometimes are a pre-cancerous condition, another scientist, Dr. David Weisberger of Harvard School of Dental Medicine, Boston, reported.

This pre-cancerous condition is called leukoplakia. About 60% of patients with mouth cancer develop it at the site of leukoplakia.

Cigarette smokers have the condition least often, pipe smokers most often, and cigar smokers and tobacco chewers are in between.

Aging, in the physiological sense rather than in years, may play an important role in the response of mouth tissues to smoking, he suggested.

Dr. Kreshover's suggestion of the protective action of saliva was based on finding little or no change in the mouth tissues of mice whose lip regions were exposed to whole tobacco smoke. Similar exposure of the ears of mice resulted in precancerous damage, Dr. Kreshover's studies showed.

Either mouth tissues have a built-in greater resistance to tobacco irritants than skin or the mouth tissues have the benefit of "a protective effect exerted by the tongue and saliva in readily removing deposited tars," he said.

Although there is clear evidence that tobacco is irritating to mouth membranes, Dr. Kreshover declared, there is no evidence that cancer of the mouth has shown an increase to parallel the growing use of tobacco in recent years in the way that statistical evidence shows such a relationship between lung cancer and increasing use of tobacco.

He discredited heat from cigarette smoking as a factor in injury to mouth tissues.

Mouth tissues are not immune to cancer induced by coal tar products, although they may be more resistant to these chemicals, Dr. Hamilton B. G. Robinson of Ohio State University College of Dentistry, Columbus, stated.

The possibility of normal mouth tissue being more resistant to cancer because of the make-up of the tissues or the presence of mouth fluids was also suggested in re-

ports by Dr. Paul Goldhaber of Harvard School of Dental Medicine, Boston, and by Dr. Barnet Levy of Columbia University School of Dental and Oral Surgery, New York.

Science News Letter, October 13, 1956

ENGINEERING

Wastes Prove Problem In Future Space Travel

► THE GREATEST DANGER in future space travel may well be the wastes from the bodies of the space travelers.

New York University scientists working on this problem of sewage disposal in space for the U. S. Air Force are considering incinerating or chemically changing wastes by solar energy re-use of treated wastes to grow algae, by burning them with the heat generated in supersonic flight, and by using them as fuel in the space ship's propulsion system.

To throw out the wastes would put the space ship off its carefully plotted flight path, upset the conservation of total mass, and be impractical because of the tremendous speeds.

Prof. William T. Ingram is director of the N.Y.U. project.

Science News Letter, October 13, 1956

MEDICINE

Sees Danger of Drug Habit in Tranquillizer

► AT LEAST ONE of the tranquilizing drugs can be habit-forming in a small percentage of cases, Dr. Frederick Lemere of Seattle, Wash., reports in the *Archives of Neurology and Psychiatry* (Aug.).

The drug is meprobamate, sold under the tradenames of Miltown and Equanil. It is, Dr. Lemere states, the "most helpful and least harmful of all drugs used for the relief of nervous and emotional tension." However, its habit-forming qualities for some persons show its use must be carefully supervised.

Some of Dr. Lemere's patients showed withdrawal symptoms such as nervousness, "the jitters" or a "let down" feeling when they missed their usual doses of meprobamate.

The unprecedented demand for the drug, talk of allowing over the counter sale of it without a prescription and its advertisement as non-habit forming led Dr. Lemere to issue his warning.

Science News Letter, October 13, 1956



NEW RADIO TELESCOPE—Newest addition to Ohio State University's Radio Observatory is this 40-foot parabolic reflector. The steerable "saucer" operates at wavelengths between 20 and 100 centimeters.

ASTRONOMY

Radio Observations Hint Venus Turns in 22 Hours

► VENUS, earth's sister planet, rotates once every 22 hours, an astronomer reports on the basis of observations of radio waves broadcast by the planet's atmosphere. (See SNL, Sept. 8, p. 150.)

The rotation period suggested by Dr. John D. Kraus of Ohio State University in *Nature* (Sept. 29) disagrees with recent optical studies by Dr. Audouin Dollfus of Meudon Observatory near Paris, who found it took Venus 224.7 days to rotate once. This is also the time the planet takes to make one revolution around the sun. (See SNL, July 21, p. 37.)

Science News Letter, October 13, 1956

TECHNOLOGY

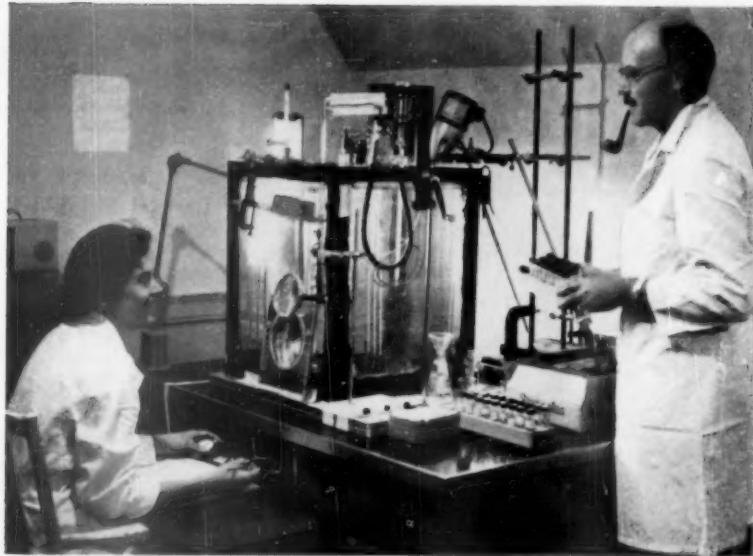
Looking Glass Gives Radiation Protection

See Front Cover

► THREE FEET of high-density glass protects an employee of the Budd Company's new Nuclear Systems Division while he operates a master-slave manipulator to extract radioactive material from a capsule with tweezers.

The facility, licensed by the Atomic Energy Commission, is the first commercial one in the United States able to fabricate radioisotopes of various types in strengths up to 10,000 curies. A curie is the unit used to measure radioactive strength.

Science News Letter, October 13, 1956



NUTRITION STUDIES—Dr. Frederick Sargent of the University of Illinois Health Service Research Unit and Mrs. Evelyn Robbins, clinical technician, are using "heavy water" in research aimed at finding the best all-purpose survival ration for the Air Force. The "falling drop apparatus" reveals how much of the known proportion of "heavy water" taken in by a subject is used by him.

MEDICINE

Negative Ions Cut Sneeze

► HAY FEVER PATIENTS of the future may equip their rooms and offices with air ionizers, instead of air filters, to get relief from sneezing, sniffling misery.

They will, that is, if recent research is confirmed.

Breathing air that is negatively ionized gave partial to complete relief of symptoms to 33 out of 53 hay fever patients, Drs. Iglo H. Kornbluech and George Morris Piersol of the Graduate School of Medicine, University of Pennsylvania, and Forrest P. Speicher, chief biologist, advanced studies group, Philco Corporation, Philadelphia, have reported.

The patients got relief even though a ventilating fan at the window brought as much pollen into the room as there was in the outside air.

"Of particular interest," the scientists pointed out, was a group of 19 patients with severe symptoms at the time of treatment. Of these, 11 got marked relief, seven became free of all symptoms and one did not respond.

Negative ionization is not a cure for hay fever. Symptoms returned to most patients within 20 minutes to two hours after they were back in a normal environment.

Negative ions in the air are molecules of such gases as oxygen, nitrogen and carbon dioxide which have gained electrons. Posi-

tive ions are similar molecules which have lost electrons. Equal numbers of negative and positive ions are continually being formed in nature.

As long ago as 1931 scientists were reporting a beneficial effect on human health from negative ions. In 1947 Drs. Kornbluech and Piersol suggested that the beneficial effects of many health resorts and mineral springs was due to the inhalation of radon or to the ionization resulting from its rapid decomposition.

After preliminary studies showed that 17 of 27 patients with hay fever or asthma or both were helped by negative ions, a joint program with the results announced was started.

The patients getting negative ionization simply sat in comfortable chairs around a table with reading material. The ionizer was on the other side of the table from them. There were no face masks. The patients just breathed normally and sat and waited for 20 minutes to half an hour.

Positive ionization of the air was also tried. This not only failed to give any relief but in many cases caused increased discomfort and irritation.

The electrostatic ionizer and a monitoring device to record continuously the ion levels were built by Philco.

Science News Letter, October 13, 1956

NUTRITION

All-Purpose Survival Ration for Air Force

► AIR FORCE CREWS forced down in the future on water or desert, on arctic wastes or dense tropical jungle will probably have survival rations with the same proportions of food elements as the normal American diet.

The new all-purpose survival ration will probably be made up of 52% starches and sugars, 33% fats and 15% proteins in addition to water. A minimum of three quarts of water for 90-degree or hotter temperature is required.

These are the ration proportions expected on the basis of tests so far at the University of Illinois Health Service Research Unit. Data from a third test, a summer study, are expected in December.

The tests have been made with college students at the University of Illinois and with airmen.

Drs. Robert E. Johnson, Frederick Sargent and others of the physiology department have worked on the project since 1951.

Science News Letter, October 13, 1956

TECHNOLOGY

Housewives May Need Map for Future Kitchen

► TODAY'S HOUSEWIFE may need a road map to find her way in the pushbutton kitchen her daughter or granddaughter will have 20 years from now. But she will enjoy it, if it is like the one the Frigidaire division of General Motors envisioned for a group of home economists and nutritionists.

Today's electric ranges and ovens in the wall will be replaced by a marble counter top that heats to roast the meat or bake the pie and then, in a moment or two, is cold enough to touch and use as a counter or table.

Ultrasonics, silent sound waves, will wash dishes in three minutes. This development may be ready in ten years, and could be even sooner if costs could be reduced to make it practical.

Ready sooner, presumably, will be a serving cart with self-contained motor that runs by itself into the dining room with food and returns with the empty dishes.

An electrically-driven and partly refrigerated turntable at the kitchen entrance will receive milk and groceries to save the housewife from having to leave the telephone or other activity to answer the door and put the groceries away.

A kind of electronic "brain" will produce the day's menus, the housewife merely pushing button two or five or whatever she feels like.

The road map or guide will be needed to show today's housewife where to touch the colorful, sliding paneled walls to get the cake that has been baking, the clean dishes or the washed and ironed clothes.

Science News Letter, October 13, 1956

PHYSICS

Test Now for Time's High-Speed Contraction

► WHETHER TIME slows down for objects traveling at very high speeds, as suggested by the late Prof. Albert Einstein, can be tested now. Conclusive experiments do not have to wait until the usual clocks can be whizzed through interplanetary space at extreme speeds.

The exploding atoms of short-lived radioactive chemicals whose disintegration rates are known can serve as suitable clocks, R. Herman of the Standard Telecommunication Laboratories, Ltd., Enfield, Middlesex, England, proposes.

The particles could be speeded up as fast as required in a giant atom smasher, he reports in *Nature* (Sept. 29).

Some of the radioactive particles would disintegrate while being whirled around in the giant accelerator. By comparing the number of particles emerging after a given time with the number injected into the synchrotron, any increase in the life of the particles could be measured by a stationary observer.

If an increase in the lifetime is recorded, Dr. Herman notes, the method might be used to "freeze" short-lived particles so their reactions could be studied in detail with more time than available when they disintegrate at the usual high rate.

Dr. Herman has a further suggestion to forestall any objection that the circular path of an atom smasher, which implies continuous acceleration, is not the same as the flight path in space travel.

His alternative method would be to accelerate the particles in an electric field, allow them to coast for a relatively long distance in a field-free region, then reflect them by a second electric field or a magnetic field to return them by the reverse route to the starting place.

The number of particles returning would be compared to the number injected into the linear accelerator.

Science News Letter, October 13, 1956

HEMATOLOGY

Find New Blood Group Links to Disease

► DISCOVERY of new links between blood groups and disease are announced *British Medical Journal* (Sept. 29).

Mothers of blood group O may predispose some of their children to duodenal ulcer, it is suggested.

Pernicious anemia patients of both sexes are more likely to belong to blood group A than other groups; other studies at a large number of medical centers in England and Scotland show. These findings are considered statistically significant, although the reason for the relationship between group A and pernicious anemia is not known.

The maternal role in duodenal ulcers was considered in attempts to learn why blood

group O has been reported more often in patients with duodenal ulcers. A group O person is not more likely to have duodenal ulcer than his A, B, or AB sisters and brothers, it was discovered.

That lends support to the idea that a group O mother might pass along to some of her children a tendency to ulcers. Or perhaps group O mothers feed and otherwise raise their children differently than mothers of A, B and AB groups, which could affect their tendency to develop ulcers. No information is available on this.

Inherited, however, is the ability to secrete in saliva and other body fluids blood group antigens. Not all persons do this. Duodenal ulcer patients are less likely to secrete these antigens. The mucus-like character of the antigens may give some protection against ulceration in those secreting them.

This possible explanation of the group O-duodenal ulcer relation is given by Dr. C. A. Clarke and associates of Liverpool and Dr. P. M. Sheppard of Oxford, England.

Science News Letter, October 13, 1956

METEOROLOGY

Weather Computed for Satellite Spotting Sites

► THE PLACES from which the earth-circling satellite will be tracked are being selected for their viewing weather by a new electronic "brain" now operating in Asheville, N. C.

This is only one of the many problems the high-speed machine at the nation's weather record center there is being asked to solve.

Weathermen around the world, including those in Russia, are turning more and more to electronic processes to help make sense out of the millions of observations taken every year. The new computer, an International Business Machines' 705, is the biggest yet to be put to work on the weather.

It will be used by the Air Force's Air Weather Service in climatological studies for the nation's military defense. The Air Force meteorologists will draw on the vast stores of data maintained in Asheville at the National Weather Records Center, a joint operation of the Weather Bureau, Navy and Air Force.

When a particular military weather problem for some area comes up, a quick run on the electronic machine will yield a detailed analysis of it.

The new machine was set into operation by Brig. Gen. Thomas S. Moorman Jr., commander of the Air Weather Service. By providing a single continuous system for processing weather data, it will do in one step computations that formerly took 42 separate steps.

It will perform 504,000 additions, 75,000 multiplications, or 33,000 divisions per minute. More important than these figures, however, it can make 1,764,000 logical decisions each minute.

Science News Letter, October 13, 1956

PHYSICS

Sentence-for-Sentence Translator Being Studied

► SENTENCE-FOR-SENTENCE translating by machine is under study at the Massachusetts Institute of Technology, the American Institute of Electrical Engineers meeting in Chicago was told by Victor H. Yngve of M.I.T.'s research laboratory of electronics.

He said "the translations produced by a routine that translates on a sentence-for-sentence basis will be vastly better than the output of a word-for-word translation machine."

He cautioned that such a translator of languages "will require a great deal of effort to work out the linguistic details," but stated that "most output sentences" would be "grammatically correct."

The M.I.T. scientist summed up the state of mechanical translators today as follows:

1. Word-for-word translators can be made now on highspeed, general purpose digital computers.

2. Word-for-word translations could be made more economically by special-purpose machines built with existing technology.

3. Word-for-word translations promise to be considerably cheaper than man-made translations.

4. Word-for-word translations are very crude, but may be useful when more accurate translations are not worth the additional cost.

5. If something better than a word-for-word translation is desired, the best hope is to take into consideration the sentence structure in designing a translation routine.

6. Providing translation routines on a sentence-for-sentence or structural basis requires a considerable amount of detailed linguistic work.

Science News Letter, October 13, 1956

DENTISTRY

Dentists Urge Mouth Protectors in Football

► THE NATION'S DENTISTS assembling in Atlantic City for the annual session of the American Dental Association urged that all high school football players be equipped with mouth protectors.

"About 54% of all high school football injuries are facial and dental," Dr. Lon W. Morrey of Chicago, editor of the association's journal, noted.

"Experience has shown that mouth protectors lessen drastically this damage," he reported. With mouth protectors, damage to teeth and jaws and even the head is reduced substantially.

Science News Letter, October 13, 1956

THE FIELDS

DENTISTRY

Urges Early Diagnosis To Save Teeth of Adults

► GROWN-UPS over age 35 lose more teeth because of gum diseases than from any other cause including tooth decay, Maj. Clifton O. Dummett of Elmendorf Air Force Base, Anchorage, Alaska, reported at the American Dental Association meeting in Atlantic City.

Early diagnosis is important to save teeth threatened by these gum diseases, popularly known as pyorrhoea and gingivitis. Dentists call the conditions periodontal diseases.

The toothbrush used effectively is "an essential home weapon" against these diseases, Maj. Dummett said.

In one study half of all men by the age of 45 were either afflicted by periodontal disease or had lost all their teeth as a result of it.

The condition affects men at an earlier age than women. It starts gradually and can often progress to the point of destructive bone loss without the patient being aware of having the disease. The gums first become inflamed and, if untreated, begin to recede.

The condition progresses until the inflammation extends deep into the tissues. With the breakdown of the hammock-like structure of bones and fibers supporting each tooth, perfectly sound teeth may be lost.

Science News Letter, October 13, 1956

METEOROLOGY

Hurricane Paths Follow Tongues of Warm Water

► HURRICANES follow the ocean's tongues of warm water and fizzle out when they move over colder water, a New York University research group has reported.

Project director Edwin L. Fisher said careful study of sea surface temperatures surrounding 11 hurricanes showed "distinct, although not conclusive" evidence of these findings, and confirmed that the tropical storms are spawned over warm ocean areas.

Reporting results of the project's first phase to the U.S. Weather Bureau, which sponsors the research, Mr. Fisher said both Hurricane Edna in 1954 and Hurricane Connie in 1955 provided dramatic evidence that storms in their early stages will swerve away from cold ocean areas.

For their studies, warm water is considered to have a temperature of at least 83 degrees Fahrenheit, while water at 80 degrees or below is considered cold.

Hurricane breeding grounds, the Caribbean and Gulf of Mexico, have many "pools" of cold water, some covering as

large an area as the tropical storms do. The New York University scientists suggest these cold "pools" may account for the meandering habits of young hurricanes.

As hurricanes roar forward, many leave cold water turned up from deeper ocean layers in their wake. Analysis of Hurricanes Connie and Diane (August, 1955) showed that the cold trail left by Connie greatly weakened Diane.

Once a hurricane stands still over an area where cold water underlies a warm surface, it will probably die out even though high winds may be churning within it.

Mr. Fisher noted that the surface temperature findings apply primarily to the area below 35 degrees latitude, about the level of Cape Hatteras. North of that, hurricane paths are more apt to be affected by the strong westerly winds in which they are embedded rather than by oceanic conditions.

The NYU scientists are now examining the transfer of energy from the sea to the atmosphere. Since hurricanes in energy of motion at any given moment equal about 1,000 atom bombs, they are trying to make a direct investigation of the energy distribution within the air masses around the storms.

Science News Letter, October 13, 1956

BIOLOGY

Says More Homosexuals Due to Kinsey Report

► A RECENT INCREASE in homosexuality was blamed on the Kinsey Report in a statement by Dr. Edmund Bergler of the New York Psychoanalytic Institute.

Kinsey's statistics, pointing to a 37% incidence of homosexuality, were apparently created by a mass pilgrimage of homosexuals who found their way to him as soon as his project became known, Dr. Bergler said at the Academy of Psychosomatic Medicine meeting in New York.

He suggested the name "statistically-induced" homosexual for this new type of deviation.

The role of the general physician in the handling of homosexuality, he said, lies in pointing out that it is a curable neurosis, requiring psychoanalytically oriented psychotherapy.

Science News Letter, October 13, 1956

ASTRONOMY

Comet Crommelin Rediscovered

► COMET CROMMELIN 1928 III has been rediscovered by Miss Ludmilla Pajdusová of Skalnate Pleso Observatory in eastern Czechoslovakia.

It is of tenth magnitude, too faint to be seen without at least a six-inch telescope. News of the comet's recovery on Sept. 29 was cabled to Harvard College Observatory here, clearing house for astronomical information in the Western Hemisphere.

Science News Letter, October 13, 1956

CHEMISTRY

Pure Silicon Lightens Rocket and Jet Devices

► THE TECHNIQUE for making an almost pure silicon, with only one part of contaminant in 6,000,000,000 parts of the element, was reported to the American Chemical Society meeting in Atlantic City by Dr. Bernard Rubin of the Air Force Cambridge Research Center, Bedford, Mass.

The near-pure silicon permits producing transistors to withstand heats up to almost 600 degrees Fahrenheit. Present germanium transistors operate at temperatures up to about 200 degrees.

Capt. Guy H. Moates and Joseph R. Weiner, chemists at the research center, worked with Dr. Rubin in producing the purified silicon.

Science News Letter, October 13, 1956

PHYSIOLOGY

Find Unsuspected Kidney Function

► AN UNSUSPECTED FUNCTION of one part of the kidney with possible bearing on some kidney disorders has been discovered by Drs. R. Richterich-Van Baerle, Leon Goldstein and Earl H. Dearborn at Boston University School of Medicine.

The discovery is about cells in the collecting ducts of the tubular portion of the kidney that does the secreting job. Heretofore, these collecting duct cells had been supposed to do the purely mechanical job of conveying urine from one part of the secreting tubules to the cavity in the kidney from which it drains to the bladder.

The Boston scientists find, however, the collecting ducts may also have the function of producing ammonia for excretion. Details are reported in *Nature* (Sept. 29).

Science News Letter, October 13, 1956

PSYCHOLOGY

Doctor's Hidden Feeling Can Halt Patient's Dieting

► AN EXCELLENT EXCUSE for an overweight patient to stop his "obnoxious" weight-reducing diet may come when the doctor's "hidden" feelings percolate through to the patient who has failed to lose weight as desired.

This subtle change in the doctor part of the doctor-patient relationship was pointed out by Dr. Wilfred Dorfman of Brooklyn at the Academy of Psychosomatic Medicine meeting in New York.

A judicious mixture of firmness and tolerance on the doctor's part is the most important element in treatment of overweight patients, Dr. Dorfman said.

Before putting a patient on a weight-reducing diet, the patient should be carefully studied, especially with regard to his emotional make-up, Dr. Hilde Bruch of Columbia University declared at the same meeting.

Science News Letter, October 13, 1956

GENERAL SCIENCE

Today's Scientists of Tomorrow

High school science clubs, local and regional science fairs are providing a vast reservoir for alleviating the scientific manpower shortage.

► HOPE for the solution of the serious scientific manpower shortage is seen today in the flourishing high school science clubs throughout the nation.

With the new school year under way, there are nearly 16,000 science clubs in operation with a membership of more than a third of a million.

Local and regional science fairs evolve from these high school science clubs. The climax of this scientific activity of American youth comes with the Eighth National Science Fair to be held May 9-11 next year in Los Angeles.

The science fair movement is one of the fastest growing educational programs in the nation. It is being supported enthusiastically by industry, colleges, scientific societies, newspapers and other mass-communication media, and the general public.

During the 1955-56 high school season, more than 1,500,000 people saw some 187,000 science fair exhibits by elementary and high school pupils. More than 30,000 of these exhibits were shown the last school term at the 110 regional science fairs affiliated with the National Science Fair.

Watson Davis, director of SCIENCE SERVICE, which administers Science Clubs of America and the National Science Fair, pointed out that, since the inception of the National Science Fair in 1950, the program has grown so fast its influence is now nation-wide. He said:

"More than 76% of National Science Fair exhibitors, who are not still in high school, have taken advanced education to train for science and technical careers, according to a survey by SCIENCE SERVICE.

"Surveys have shown that only about half of the students who finish high school in the top 20% of their classes go to college.

"This comparison indicates that science fairs are finding those who pursue higher education and who are most likely to become the scientists of tomorrow."

Show Democracy in Action

Science fairs are an example of democracy in action. Boys and girls regardless of their background are being encouraged to further their activity in the sciences. New ideas are sought out and acclaimed publicly.

Such was not always the case. In the days of Galileo and Copernicus, those with new ideas were considered heretics. They were often persecuted. Columbus was ridiculed when he insisted the earth was round.

However, this is an era of change. With the obtaining of power from the atom,

hitherto unknown possibilities have sprung into probabilities and actualities. An atomic-powered submarine has been successfully pioneered. Power plants of the future will be run with atomic energy.

Most conscious and excited about this scientific progress are the boys and girls affiliated directly or indirectly with Science Clubs of America. Science teachers report there are students in all grades who are anxious to pioneer. The fact that others, somewhat older, may have preceded them in exploring new scientific fields does not act as a deterrent, but rather as an incentive. Creative imagination is evident everywhere as students plan and make exhibits for science fairs.

A science fair is a collection of exhibits, each of which is designated to show a biological, chemical, physical or technical principle. In most cases the fair director is a high school science instructor or a college professor, but in a few cases the director is the promotion manager of a sponsoring newspaper.

A typical report is from the Delaware County Science Fair, sponsored by the *Philadelphia Inquirer*. Like many others, this fair has become so successful it has become necessary to limit the number of entries. The participating schools are being urged to increase the standards of their students' exhibits by holding elimination fairs within individual schools. This policy resulted in a reduction of exhibits to 381 in 1956 from 487 in 1955.

Very Young Participate

A breakdown of these exhibits shows there were 111 from grades 10, 11, 12. From grades 7, 8 and 9 there were 121. From grades 4, 5 and 6 there were 109. And there were 15 exhibits from the kindergarten through the third grade. Twenty-five group projects, not eligible for the National Science Fair, brought the total to 381.

These figures indicate the interest in science for the very young is not unusual, while the interest of those in the elementary schools is becoming increasingly important.

For young boys and girls, science starts out as being merely fun. As they grow older and move into the last two or three years of high school, science takes on a more serious aspect. These are some of the reasons why:



YOUNG SCIENTIST—Loren Cameron Mosher, 17, Phoenix, Ariz., is one of the top scientists among the 187,000 youths who did projects for science fairs preliminary to the National Science Fair last May in Oklahoma City. There he was one of the four national first-award winners. His exhibit showed that energy in a coiled spring gave out more heat than an uncoiled spring when both were dissolved in acid.

1. A chance to prepare for life work.
2. An opportunity for keen competition.
3. A chance to meet other young people with similar interests.

Many of the fair participants start working in their chosen fields before finishing their education. Many employers are anxious to have the services of students while they are completing their education.

This past summer many science students, following their high school graduation and before entering college, took jobs at such places as the National Bureau of Standards and the National Institutes of Health in Washington; the U. S. Naval Ordnance Laboratory at White Oak, Md.; U. S. Department of Agriculture Research Center at Beltsville, Md.; the Mayo Clinic at Rochester, Minn., and the Westinghouse Research Laboratory at Pittsburgh, Pa. Others spent at least part of their vacation in study preparing for the college term.

Here then is a story of democracy in action.

Scientifically inclined youths, regardless of their station in life, get help from many quarters in the competition to become the scientists of tomorrow.

Scholarships Often Awarded

Scholarships are often awarded winners at the science fairs. It has been particularly notable that not only those interested in science, but also those interested in civic betterment acclaim the regional fair participants.

At the National Science Fair creative ability and scientific thought, each worth 30 points, are the main factors the judges look for in determining the winners. Other factors, each worth 10 points, are thoroughness, skill, clarity and dramatic presentation.

In addition to an all-expense trip to the national fair, each competitor receives a medal for being a finalist and shares an opportunity of receiving one of the 60 awards, ranging in value from \$25 to \$125.

Each participant realizes, however, that his greatest reward comes from the satisfaction of completing a self-assigned task and bringing honor to himself, his school and others who have encouraged him.

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gional fair, who will be selected as finalists to the Eighth National Science Fair in Los Angeles next May.

Facilities of the California Institute of Technology, the University of California at Los Angeles and the University of Southern California will be at the disposal of the visitors.

Trips will be made to such places of interest as the La Brea Tar Pits, the Arboretum, the Marineland of the Pacific, aviation plants and other industries. Walt Disney is preparing a special movie for the National Science Fair official party giving behind-the-scenes views of filming wild life.

Science News Letter, October 13, 1956

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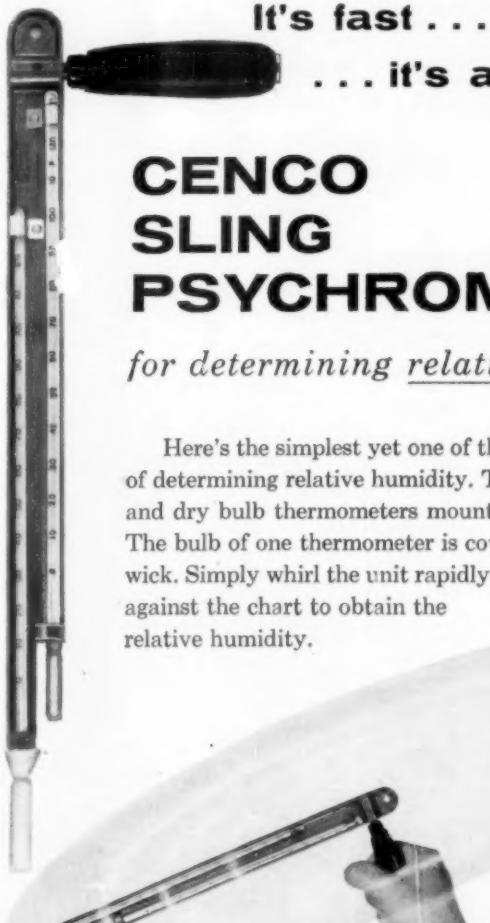
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PUBLIC HEALTH

Questions Fat in Diet Related to Heart Disease

THE IDEA that the increase in coronary heart disease is related to fats in the diet was questioned by Dr. Fredrick J. Stare of Harvard University at the Golden Anniversary of the American Meat Institute.

"There may not have been an increase in fat consumption, as claimed by some," Dr. Stare said, reviewing figures comparing American diets now with those 50 years ago.

Dr. Stare made the following comments on reports about low coronary disease rates of primitive people compared to Americans and other modern peoples:

"Researches with man, particularly studies from various parts of the world where one can compare the prevalence of atherosclerosis (artery disease) in groups of people with markedly different diets, also point to the importance of diet in this disease."

"The low fat diets of primitive groups of people differ in many other respects from our high fat diets. They are high in fiber and starch and low in sucrose (sugar). They differ in protein, vitamins and minerals. Thus, there are many other differences than fat."

Changes in body weight, diet and exercise must be considered in any discussion of coronary heart disease, Dr. Stare said.

Science News Letter, October 13, 1956

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ALL ABOUT MOTHS AND BUTTERFLIES—Robert S. Lemmon—*Random House*, 158 p., illus, with drawings by Fritz Kredel, \$1.95. Attractive information for the young nature student and collector.

ALL ABOUT STRANGE BEASTS OF THE PAST—Roy Chapman Andrews—*Random House*, 146 p., illus, with drawings by Matthew Kalmenoff, \$1.95. The author turns time back a million years to show young readers such creatures as the saber-toothed tiger and the Beast of Baluchistan.

AMERICAN MOTHS OF THE SUBFAMILY PHYCITINAE—Carl Heinrich—*Govt. Printing Office*, Smithsonian, 581 p., illus., \$5.50. Reporting a 25-year study of New World moths, including 194 genera, 619 species and 21 subspecies (local races). Of these, 60 genera, 81 species and 8 races are new.

ANNOTATED SUBJECT-HEADING BIBLIOGRAPHY OF TERMITES 1350 B.C. to A.D. 1954—Thomas E. Snyder—*Smithsonian*, Miscellaneous Collections, Vol. 130, 305 p., paper, \$4.00. The earliest reference was in Sanskrit to "ghuna" as destroyers of wood.

CREATIVE COMMUNICATION—Edwin Laird Cady—*Reinhold*, 158 p., illus., \$2.50. The author calls this an attack upon our latest model Tower of Babel. Telling engineers how to write.

DAYS WITH BIRDS: STUDIES OF HABITS OF SOME EAST AFRICAN SPECIES—V. G. L. Van Someren—*Chicago Natural History Museum*, Fieldiana: Zoology, Volume 38, 520 p., illus., paper, \$8.00. Not a treatise or a text book, but a collection of first-hand observations of a bird lover, written in non-technical language and intended especially for youngsters and nature lovers. In making the study, no creature was shot, not even predators such as leopards.

DICTIONARY OF POISONS—Ibert Mellan and Eleanor Mellan—*Philosophical Library*, 150 p., \$4.75. Listing poisons alphabetically from acetamide to zinc phosphide and telling for each what to do as emergency treatment until the doctor comes.

ELEMENTS OF RADIO—Charles I. Hellman—*Van Nostrand*, 3d ed., 354 p., illus., \$4.95. An introduction to a subject of particular interest to students of radio and electricity and to hobbyists.

EVALUATION OF TYPICAL OREGON BASE-COURSE MATERIALS BY TRIAXIAL TESTING—Marvin A. Ring Jr.—*Oregon State College*, Engineering Experiment Station Bulletin No. 37, 48 p., illus., paper, 50 cents. The shearing strength of soil is its most significant strength property, and this can be measured by an apparatus called a triaxial shear machine.

THE FIRST BOOK OF CODES AND CIPHERS—Sam and Beryl Epstein—*Franklin Watts*, 62 p., illus., \$1.95. Most children are fascinated by secret languages. This little book explains for them the use of codes and ciphers.

HANDBOOK OF HISTOLOGY—Karl A. Stiles with an introduction by Melvin H. Knisely—*Blakiston-McGraw-Hill*, 4th ed., 240 p., illus., paper, \$3.00. Thoroughly revised edition of a standard textbook formerly entitled "Handbook of Microscopic Characteristics of Tissues and Organs."

IMMUNIZATION INFORMATION FOR INTERNATIONAL TRAVEL—Division of Foreign Quarantine

U. S. Public Health Service—*Govt. Printing Office*, 61 p., illus., paper, 25 cents. Includes maps showing the parts of the world where yellow fever is endemic.

LIGHT-SCATTERING IN PHYSICAL CHEMISTRY—K. A. Stacey—*Academy*, 230 p., illus., \$6.75. A review of the main outlines of the theory, practice and use of this technique.

METAL POWDER ASSOCIATION: PROCEEDINGS, TWELFTH ANNUAL MEETING, APRIL 11-12, 1956—E. A. Anderson and E. H. Rennhack and others—*Metal Powder Association*, 130 p., illus., paper, \$3.00. Devoted to advances in all fields of powder metallurgy.

THE NATIONAL AERONAUTICAL COLLECTIONS: SMITHSONIAN INSTITUTION, NATIONAL AIR MUSEUM—Paul E. Garber—*Smithsonian*, 9th ed., Publication 4255, 166 p., illus., paper, \$1.50. The exhibits described here trace the history of aviation from the Wright Brothers until today.

RESEARCH AND DEVELOPMENT BY NONPROFIT RESEARCH INSTITUTES AND COMMERCIAL LABORATORIES, 1953—Sidney C. Sutrin and others—*Govt. Printing Office*, Maxwell Research Center, Syracuse University for the National Science Foundation, 81 p., paper, 50 cents. Results of a survey of all known research institutes and a substantial sample of commercial laboratories. (See p. 227.)

SCIENCE AND SURGERY—Frank G. Slaughter—*Permabooks*, 272 p., paper, 35 cents. Completely rewritten edition of a book originally published by Messner under the title "The New Science of Surgery" in 1946.

WEATHER ANALYSIS AND FORECASTING: VOLUME I MOTION AND MOTION SYSTEMS—Sverre Pettersen—*McGraw-Hill*, 2d ed., 428 p., illus., \$8.50. Providing a text for the reorientation of the training of forecasters.

Science News Letter, October 13, 1956

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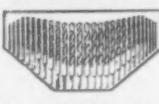
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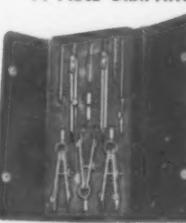

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Questions

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MEDICINE—What is the typical young executive under 40 like? p. 228.

What danger is involved in use of tranquilizing drugs? p. 230.

□ □ □

METEOROLOGY—What paths do hurricanes tend to take in their early stages? p. 233.

□ □ □

PUBLIC HEALTH—How can fleas be tagged radioactively? p. 228.

□ □ □

PHYSICS—How could the Einstein theory on contraction of time at very high speeds be tested now? p. 232.

□ □ □

VIROLOGY—How might cold be useful in testing polio viruses? p. 229.

□ □ □

PHOTOGRAPHS: Cover, The Budd Company; p. 227, U. S. Army; p. 229, Martin Gudis; p. 230, Ohio State University; p. 231, University of Illinois; p. 234, Fremont Davis; p. 240, House of Ideas.

BIOCHEMISTRY**Human Blood Molecules Give Rats Artery Disease**

► SIGNS of the dangerous artery disease of man, atherosclerosis, have been produced in rats, a species naturally immune to the condition.

Injections of big fat-protein molecules from human blood made the rats get fatty deposits in their hearts and arteries. These fatty deposits are characteristic of early atherosclerosis, chief cause of death in the United States.

The finding gives further evidence for faulty fat transport as a cause of atherosclerosis, because the big fat-protein molecules are the form in which the body transports fat through the blood.

The fat-protein molecules differ in density, or weight per unit of volume. Abnormal quantities of the high density ones, the findings also suggest, may block the natural mechanism for removal of those of lower density.

The findings, made by Drs. Joseph Bragdon, Edwin Boyle and Richard Havel of the National Heart Institute, Bethesda, Md., are reported in the *Journal of Laboratory and Clinical Medicine* (July).

Science News Letter, October 13, 1956

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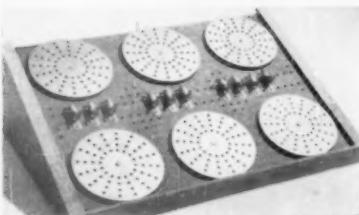
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WEATHER MAP features a physical map of the United States flanked by full color illustrations explaining cold front, warm front, thunderstorm, tornado, hurricane, typhoon and related topics. The wall map measures 29 inches by 42 inches.

Science News Letter, October 13, 1956

ELECTRIC GRIDDLE is described as performing greaseless cooking with automatic, controlled heat. Providing a cooking surface of 168 square inches, the griddle can handle nine hamburgers, nine eggs or nine pancakes at one time. The heat adjustment ranges from room temperature to 430 degrees Fahrenheit.

Science News Letter, October 13, 1956

CHILDREN'S SLIPPERS modeled after those worn by the legendary Robin Hood can be worn indoors or outdoors. They are made of a suede-like fabric, with the finish anchored in neoprene, a synthetic rubber. The slippers withstand scuffing, oils, grease, detergents, heat and sunlight.

Science News Letter, October 13, 1956

PARAKEET PLATFORM, shown in the photograph, serves as a "landing strip" for man's popular feathered friend. The natural finish wood platform has a pocket with a metal bottom inside the cage for



seed or grit. The porch does not have to be removed to open or close the cage door.

Science News Letter, October 13, 1956

INTERIOR DOOR slides and folds. The door panels can be of any width desired, and the doors may have two or more

panels of any height. Eliminating the need for hinged swinging doors, the panels can be made from solid wood, plywood, glass fiber, or any fabric that can be framed with wood.

Science News Letter, October 13, 1956

PORTABLE BELT CONVEYORS are available in two heavy duty lines. The larger belt has a distributed load capacity of 4,000 pounds, with a minimum length of 26 feet, expandable to 43 feet. The smaller has a capacity of 1,000 pounds, is 15 feet in length, expandable to 25 feet. Both belts are 16 inches wide.

Science News Letter, October 13, 1956

ANTI-ROLL FIN for fishing vessels and other small craft is described as cutting roll by 80%. A British device, the fin can be fitted or removed by a diver. Non-retractable, the fin has a small outreach to save weight and space.

Science News Letter, October 13, 1956

LABORATORY SPATULA breaks up chemicals in large bottles and cleans reaction kettles. Made of stainless steel, the highly polished tool is ground thin at both ends, with one square and the other rounded. It is available in 12- and 18-inch models.

Science News Letter, October 13, 1956



Nature Ramblings



By HORACE LOFTIN

► WHAT is the most ferocious creature on earth?

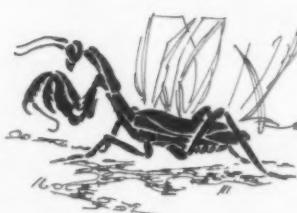
In search of candidates for this question of honor, you might suggest the Bengal tiger, a lithe black leopard, a savage wolf or an enraged bull elephant. There are, however, other less evident contenders for the title.

The late H. G. Wells once said that, considering her size, the praying mantis is the most awe-inspiring of created beings when aroused.

Let us examine the praying mantis's qualifications.

First, she has a natural camouflage that allows her to stalk her prey as though she wore a cloak of invisibility. Her upper body is long and thin, like the stem of a bush, and her lower body is flattened and colored like a leaf.

Ferocity Contest



(The mantis is called "she" here, since the females devour the weaker males after mating. Certainly a female would represent the praying mantises in a ferocity contest.)

The first pair of legs of the mantis is formed with powerful toothed claws that can hold and crush prey her own size and

even larger. With these claws, the mantis can take a good "bite" from a human finger.

Her mouth is equipped with strong jaws capable of cutting easily through the hard exoskeleton of insect prey. To go with stealth, claws and terrible jaws, the praying mantis has an appetite that—taking size into account—would put a hungry tiger to shame. She can devour her own weight or more in food a day.

Then there is her temperament. Wells told about an encounter with an enraged mantis. The insect reared herself menacingly, brought her claws forward and rattled her wings to produce a "quite horrid hiss."

The great scientist and author confessed that he could no more have touched that menacing little beast than he could have walked up to a snarling tiger!

Science News Letter, October 13, 1956